## **BIOTIC COMMUNITY**

## **Fish Community**

Fish community data were collected by Missouri Department of Conservation (MDC) staff from 38 sites (numbered 1-40, two numbered sites not sampled) throughout the basin during 1990. Fish were collected using a seine 15 or 25 feet long with 1/8 inch mesh. Kick seine methods were used to sample riffles. A boat-mounted electrofishing unit was used where possible to sample deep pools. Large fish were identified on site and returned to the water. Small fish were preserved and later identified in the lab. Data collected prior to 1990 were obtained from the MDC database (Pflieger, unpublished).

A total of 54 fish species from 12 families has been collected in the North River basin (Table 7). Forty-nine species were found during the 1990 survey. From a basin wide perspective, the community includes fishes representative of the Prairie, Lowland, Ozark, and Big River faunal regions. According to Pflieger (1971), 37% are wide-ranging, 12% are big river species, 27% are Prairie species, 29% are Ozark species, and 8% are representative of the Lowlands. Several species are associated with more than one faunal region so the sum of these percentages exceeds 100%. The dominant fish families were the minnows (20 species), sunfishes (7 species), catfishes (6 species), perches (6 species), and suckers (6 species). The most abundant and common species collected in recent surveys was the red shiner, which comprised 29% of all fish collected and occurred at 89% of all sites. The redfin shiner and bluntnose minnow were the second and third most abundant species, comprising 13% and 11% of all fish collected and occurring at 81% and 84% of all sites, respectively. Other commonly occurring species (found in at least 60% of all sites) include the following: bigmouth shiner, sand shiner, central stoneroller, johnny darter, orangethroat darter, and green sunfish.

Sportfish (13 species which provide angling opportunity) made up approximately 8% of all fish collected basin streams. Due to their large size, these fishes were under-represented numerically because they were not fully vulnerable to our sampling gear. Green sunfish were the most abundant species in this group and were found at 78% of all sites. Channel catfish, the most popular game species in the basin, were found at 24% of all sites. Although no longer abundant, smallmouth bass were at found 35% of all sites. Site-specific fish collection data are available from the Missouri Department of Conservation, Hannibal, Missouri, (573) 248-2530.

Five species found in the basin prior to 1990 and not found in recent surveys include the following: southern redbelly dace last collected in 1987, ghost shiner last collected in 1956, Mississippi silvery minnow last collected in 1941, tadpole madtom last collected in 1987, and blackstripe topminnow last collected in 1941. Southern redbelly dace and tadpole madtoms were found in Big Spring Creek, a small North River tributary near Palmyra, during recolonization surveys in 1986 and 1987 following a fish kill in August 1986. This site was not included in the 1990 survey. Both species probably still occur at this location, but have not been collected elsewhere in the basin. Mississippi silvery minnows and ghost shiners are likely extirpated from the basin.

Species collected in 1990 that were not found by previous investigators include the longnose gar, smallmouth buffalo, silver chub, slough darter, redear sunfish, and brook silverside. These species were likely missed during earlier surveys or occur now as a result of escape from impoundments.

Eleven of the 38 sites surveyed during 1990 were resurveyed during 2000. Thirty-three species were collected at these 11 sites during 1990 and 34 were collected during the 2000 resurvey (Table 7). Species absent during the resurvey include longnose gar, black bullhead, slender madtom, and redear sunfish. Species found during 2000 that were not captured during 1990 include shorthead redhorse, yellow bullhead, tadpole madtom, fantail darter, bluntnose darter, and mosquitofish.

## **Artificial Stockings**

No official attempts have been made to introduce exotic or native species in basin streams. Some introductions have probably occurred from private pond emigration or bait releases.

## **Aquatic Invertebrates**

Limited mussel surveys have been conducted in the basin. Buchanan (1992) surveyed the two sites in the North River in 1991 while determining the status of the endangered winged mapleleaf. He reported just 7 species of very low abundance at these sites combined (squawfoot, white heelsplitter, mapleleaf, pink heelsplitter, lilliput shell, pond mussel, pocketbook).

Crayfish surveys have also been limited in the basin and only one species (Northern crayfish) has been officially recorded. Papershell crayfish and devil crayfish are likely to occur in the basin as well (Missouri Department of Conservation, B. DiStefano, personal communication).

Duchrow (1974) surveyed aquatic insect communities at seven sites in the basin during 1969-1970. He reported a total of 76 taxa. Only four taxa of stoneflies and 11 taxa of mayflies were considered pollution intolerant. Duchrow attributed low species diversity and low density of intolerant taxa to sediment pollution.

Table 7. Fish species collected and current status in the North River basin.

Common Name	Collected Prior to 1990	Collected 1990	Collected 2000	Current <sup>1</sup> Status
Shortnose gar	X	X		LA
Longnose gar		X		U
Gizzard shad	X	X		LA
Bigmouth buffalo	X	X		LA
Smallmouth		X		LA
buffalo		Λ		LA
Quillback	X	X		C
River carpsucker	X	X	X	LA
White sucker	X	X	X	LA
Golden redhorse	X	X	X	С
Shorthead	X	X	X	U
redhorse			Λ	
Common carp	X	X		C
Silver chub		X		R
Creek chub	X	X	X	LA
Southern redbelly	X			R
dace	Λ			
Bigeye shiner	X	X	X	C
Bigmouth shiner	X	X	X	C
Emerald shiner	X	X	X	C
Ghost shiner	X			Е
Golden shiner	X	X	X	LA
Red shiner	X	X	X	C
Redfin shiner	X	X	X	C
River shiner	X	X		R
Sand shiner	X	X	X	C
Spotfin shiner	X	X		R
Bluntnose	X	X	X	С
minnow				
Bullhead minnow	X	X	X	LA
Mississippi	X			Е
silvery minnow				
Fathead minnow	X	X	X	LA
Suckermouth	X	X	X	U
minnow				
Central	X	X	X	C
stoneroller				
Channel catfish	X	X	X	LA
Black bullhead	X	X		LA

Yellow bullhead	X	X	X	LA
Flathead catfish	X	X	X	LA
Tadpole madtom	X		X	R
Slender madtom	X	X		U
Blackstripe topminnow	X			R
Mosquitofish	X	X	X	U
White bass	X	X		U
Slenderhead darter	X	X	X	LA
Johnny darter	X	X	X	C
Bluntnose darter	X	X	X	R
Orangethroat darter	X	X	X	С
Fantail darter	X	X	X	U
Slough darter		X	X	R
Smallmouth bass	X	X	X	U
Largemouth bass	X	X	X	U
Green sunfish	X	X	X	C
Redear sunfish		X		R
Orangespotted sunfish	X	X	X	LA
Bluegill	X	X	X	LA
White crappie	X	X		LA
Brook silverside		X	X	U
Freshwater drum	X	X		U

<sup>1-</sup> C=common, E=extirpated, LA=locally abundant, R=rare, U=uncommon